

## CLAIMS

1. A feedforward adaptive non-uniformity compensation processor comprising:  
 a multiplier receiving a video image and generating a compensated video image  
 by multiplying the video signal by one of a noise reducing constant and one; and  
 a shunting multiplication processor which supplies a selected one of the noise  
 reducing constant and one to the multiplier in response to the presence of one of fixed  
 pattern noise (FPN) and temporal noise (TN) in adjacent frames of the video image.

2. The feedforward adaptive non-uniformity compensation processor as recited in  
 claim 1, wherein the noise reducing constant is zero.

3. An adaptive non-uniformity compensation processor comprising:  
 a subtractor receiving a video image and subtracting a mean value of the video  
 image to thereby generate a de-measured video image;  
 a first processor generating a current average frame responsive to the de-measured  
 video image and a previous averaged frame and generating a value indicative of fixed  
 pattern noise (FPN) from the current and previous averaged frames;  
 a second processor selectively generating first and second multiplication constants  
 responsive to the value and the previous averaged frame;  
 a multiplier for multiplying the selected one of the first and second multiplication  
 constants by the de-measured video image to thereby generate a shunt processed video  
 signal; and  
 an adder adding the mean value of the video image to the shunt processed video  
 image to thereby generate a compensated video image.

4. The adaptive non-uniformity compensation processor as recited in claim 3, wherein the first multiplication constant is zero and the second multiplication constant is one.

5. The adaptive non-uniformity compensation processor as recited in claim 3, wherein the second processor compares the value to a predetermined threshold value to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the value indicates the presence of FPN.

6. The adaptive non-uniformity compensation processor as recited in claim 3, wherein the second processor compares the previous averaged frame to a predetermined threshold value on a pixel-pixel basis to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the previous averaged frame indicates the presence of temporal noise (TN).

7. The adaptive non-uniformity compensation processor as recited in claim 3, wherein the second processor compares the value and the previous averaged frame to respective first and second predetermined threshold values to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the value indicates the presence of FPN or to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the previous averaged frame indicates the presence of temporal noise (TN).

8. An adaptive non-uniformity compensation processor comprising:  
a subtractor receiving a video image and subtracting a mean value of the video image to thereby generate a de-meanned video image;

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a second processor receiving the value and generating an averaged value corresponding to a predetermined number of grouped pixels;

a multiplier for multiplying the selected one of the first and second multiplication constants by the de-meanned video image to thereby generate a shunt processed video signal; and

9. The adaptive non-uniformity compensation processor as recited in claim 8, wherein the first multiplication constant is zero and the second multiplication constant is one.

10. The adaptive non-uniformity compensation processor as recited in claim 8, wherein the third processor compares the value to a predetermined threshold value on a pixel-by-pixel basis to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the value indicates the presence of FPN.

11. The adaptive non-uniformity compensation processor as recited in claim 8, wherein the third processor compares the averaged value to a predetermined threshold value on a pixel-pixel basis to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the previous averaged frame indicates the presence of temporal noise (TN).

12. The adaptive non-uniformity compensation processor as recited in claim 8, wherein the third processor compares the value and the averaged value to respective first and second predetermined threshold values to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the value indicates the presence of FPN or to thereby cause the lower of the first and second multiplication constants to be output to the multiplier when the previous averaged frame indicates the presence of temporal noise (TN).

13. An adaptive non-uniformity compensation method for video images comprising:

subtracting a mean value of the video image to thereby generate a de-meant video image;

generating a current average frame responsive to the de-meant video image and a previous averaged frame;

generating a value indicative of fixed pattern noise (FPN) from the current and previous averaged frames;

selecting one of first and second multiplication constants responsive to the value and the previous averaged frame;

multiplying the selected one of the first and second multiplication constants by the de-meant video image to thereby generate a shunt processed video signal; and

adding the mean value of the video image to the shunt processed video image to thereby generate a compensated video image.

14. The adaptive non-uniformity compensation method as recited in claim 13, wherein the first multiplication constant is zero and the second multiplication constant is one.

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15. The adaptive non-uniformity compensation method as recited in claim 13,

16. The adaptive non-uniformity compensation method as recited in claim 13,

17. The adaptive non-uniformity/compensation method as recited in claim 13,

18. An adaptive non-uniformity compensation method for video images

subtracting a mean value of the video image to thereby generate a de-meanned

generating a current average frame responsive to the de-meanned video image and

generating a value indicative of fixed pattern noise (FPN) from the current and

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the averaged value;

de-meant video image to thereby generate a shunt processed video signal; and

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one.

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array (FPA) generating a plurality of pixels, said system comprising:

means for coning the output of the FPA to thereby generate a coned output signal;

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basis to thereby generate a FPN-reduced output signal:

22. A fixed pattern noise (FPN) reduction method for a focal plane array (FPA) generating a plurality of pixels, comprising:

coning the output of the FPA to thereby generate a coned output signal;

isolating FPN included in the coned output signal on a pixel-by-pixel basis; and

5 feedforward processing the coned output signal on a pixel-by-pixel basis to thereby generate a FPN-reduced output signal.

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